Multiplying and Dividing by Powers of 10

Item 1:

Use the table to answer the question.

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Part A

Complete the table by listing the values for pattern B.



Part B

Explain the relationship between patterns A and B.

Item 2:



Jessie writes the following multiplication facts.

8 × 1 = 8

8 × 10 = 80

8 × 100 = 800

Jessie says, “By this pattern, I know that 8 × 10,000 = 8,000.” Is Jessie’s statement correct? Explain why or why not.

A. No. Since 10,000 = 105, the product should

have five zeros.

B. No. The product should have one zero for each factor of 10 in 10,000.

C. Yes. The product should have one digit for each zero in 10,000.

D. Yes. Each product in the pattern has one zero more than the product before it.

Which expression is equivalent to 104?

A. 10 × 4

B. 10 + 10 + 10 + 10

C. 10 × 10 × 10 × 10

D. 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4

Item 4:

Which expression is equivalent to 103?

A. 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3

B. 10 × 3

C. 10 + 10 + 10

D. 10 × 10 × 10

Item 5:

Charlie is making two liters of lemonade. He uses 1.5 liters of water. How many milliliters of water did Charlie use?

A. 150 milliliters B. 500 milliliters C. 1,500 milliliters D. 2,000 milliliters

Item 6:

During a rainstorm, Ivan collected 605 milliliters of water. Which measure is closest to this volume in liters?

A. 0.06 liter B. 0.6 liter C. 600 liters

D. 6,000 liters

Cory enters the number 1,359 in her calculator, then uses one calculation and gets a result of

13.59. What calculation did Cory use?

A. multiply by 10

B. multiply by 100

C. divide by 10

D. divide by 100

Item 8:

What is the value of this expression?

750 ÷ 100

A. 75,000

|  |  |
| --- | --- |
| B. | 750 |
| C. | 75 |
| D. | 7.5 |

Item 9:

Lamar reads that a stack of 10,000 pennies has a mass of 25 kilograms. He follows these steps to find the mass of a single penny:

multiply 25 by 1,000 to find the mass, in grams, of 10,000 pennies divide the result by 10,000 to find the mass, in grams, of 1 penny

Based on these steps, what is the mass, in grams, of 1 penny?

A. 0.25 gram B. 2.5 grams C. 25 grams

D. 250 grams

Item 10:

Jenna multiplied 0.00345 by a number. The result was 34.5. By what number did Jenna multiply?

A. 1,000

B.   10,000

C. 100,000

D. 1,000,000

Item 11:

Julie’s mom is 1,740 millimeters tall.

Write this same height as a number of meters (m). Do not add words to your answer.

Item 12:

Which expression will result in a product greater than 4,521?

A. 4.521 × 1,000

B. 45.21 × 10

C. 452.1 × 100

D. 4.521 × 100